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Applicant's or agent's file reference  
P3958 127770

International application No.

(if known)

PCT/US 00/ 02028

International filing date (day/month/year)  
(if known)

26/01/2000

(Earliest) Priority date  
(day/month/year)

Applicant

TOWNSEND ENGINEERING COMPANY et al.

Title of invention

METHOD AND MEANS FOR FILLING NATURAL CASING SAUSAGES

The applicant hereby requests the International Bureau to acknowledge to the following person (include full name, address, facsimile No. and telephone No.):

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- ☐ description (excluding sequence listing part) ( pages)
- ☒ claims ( 7 pages)
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- ☐ drawings ( pages)
- ☐ sequence listing part of description ( pages)
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- ☐ priority document (if more than one, indicate number)
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- ☐ statement accompanying diskette containing sequence listing
- ☒ accompanying letter - 2 pages
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# PATENT COOPERATION TREATY

## PCT

### ACKNOWLEDGEMENT OF RECEIPT OF DOCUMENTS FILED WITH THE INTERNATIONAL BUREAU AS RECEIVING OFFICE

To: KIRK M. HARTUNG  
ZARLEY MCKEE THOMTE VOORHEES & SEASE  
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Applicant

TOWNSEND ENGINEERING COMPANY, et al.

Title of invention

METHOD AND MEANS FOR FILLING NATURAL CASING SAUSAGES

1. The International Bureau has received the documents/elements listed below on: \_\_\_\_\_  
by the following means:

- ☐ mail (surface, air mail, registered)    ☐ delivery service    ☐ facsimile transmission    ☐ hand delivery
- ☐ PCT request (                      pages)
- ☐ description (excluding sequence listing part) (                      pages)
- ☒ claims (                      7                      pages)
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- ☐ priority document (if more than one, indicate number)
- ☐ separate indications concerning deposited microorganism or other biological material (                      pages)
- ☐ nucleotide and/or amino acid sequence listing on diskette (if more than one diskette, indicate number)
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The applicant's attention is drawn to the fact that these papers have not yet been checked by this receiving Office in respect of their compliance with the requirements of Article 11(1), that is, whether these papers meet the requirements necessary for the according of an international filing date. As soon as these papers have been checked, the applicant will be informed accordingly.

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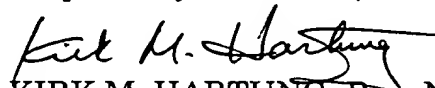
Independent machine claim 17 and independent machine claim 24 are similar to claim 1 in requiring a thrust collar slidably mounted on the stuffing tube for moving or pushing a natural casing on the stuffing tube. Since none of the references cited in the International Search Report disclose such a thrust collar, claim 10, and depending claims 11-16 and 19-21, as well as claim 17, distinguish over the references so as to be allowable.

Independent method claim 7 requires a step of "moving the casing hopper away from its position adjacent the case and filling station when natural casings are placed on a stuffing tube in the casing filling station." Similarly, independent machine claim 10 requires "means on the machine for moving the casing hopper away from its position adjacent the casing filling station when natural casings are placed on a stuffing tube in the casing filling station." None of the cited references show such a moveable casing hopper, such that claims 7 and 10 distinguish over the cited references so as to be allowable, along with claims 8 and 9 depending from claim 7 and claims 11-16 depending from claim 10.

New independent claim 22 incorporates the limitations from claims 1 and 3, and particularly requires a resilient brake element in the chuck to impede the longitudinal movement of the natural casing on the stuffing tube. Similarly, independent machine claim 23 requires the resilient brake element for impeding the movement of the natural casing on the stuffing tube. None of the references from the International Search Report teach or suggest such a resilient brake element. Accordingly, 22 and 23 distinguish over the references so as to be allowable.

In view of the foregoing, Applicant respectfully requests that a Notice of Allowance be issued.

Respectfully submitted,



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& SEASE  
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## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>P3958 127770</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/US 00/ 02028</b>	International filing date (day/month/year) <b>26/01/2000</b>	(Earliest) Priority Date (day/month/year) <b>05/04/1999</b>
Applicant <b>TOWNSEND ENGINEERING COMPANY et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:



contained in the international application in written form.



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furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of Invention is lacking** (see Box II).

**4. With regard to the title,**

the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

**5. With regard to the abstract,**

the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

**6. The figure of the drawings to be published with the abstract is Figure No.**

as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.

**38**

None of the figures.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 00/ 02028

## Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

The abstract is modified as follows :

- line 8 : after "hollow chuck" insert "(100)" ;
- line 9 : after "brake element" insert "(160)" ;
- line 10 : after "thrust collar" insert "(200)" ;
- line 13 : after "stuffing horn" insert "(16)" ;
- line 14 : after "casing hopper" insert "(46)" .

# INTERNATIONAL SEARCH REPORT

Intel. Patent Application No.

PCT/US 00/02028

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 A22C11/02

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 A22C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document; with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 830 050 A (KASAI MINORU ET AL) 3 November 1998 (1998-11-03)	1,3-5, 7-14
Y	column 3, line 7 -column 6, line 9; claims 1,22; figures 1,2,6,16,22,23	2,6,17
Y	US 3 952 370 A (GREIDER CHARLES AUSTIN) 27 April 1976 (1976-04-27) abstract; figures	2
Y	US 5 087 463 A (RAUDYS VYTAS A ET AL) 11 February 1992 (1992-02-11) column 2, line 23 -column 3, line 24 column 4, line 56 -column 5, line 66; figures 4-6	6,17
	-/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
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- \*O\* document referring to an oral disclosure, use, exhibition or other means
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- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*A\* document member of the same patent family

Date of the actual completion of the international search

29 May 2000

Date of mailing of the international search report

06/06/2000

Name and mailing address of the ISA

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# INTERNATIONAL SEARCH REPORT

Intel      onal Application No

PCT/US 00/02028

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 885 565 A (HANDTMANN ALBERT MASCHF) 23 December 1998 (1998-12-23) column 2, line 5 - line 10; claims; figures	1,3-5, 7-9
Y	US 5 813 907 A (LEBSACK KENNETH L ET AL) 29 September 1998 (1998-09-29) column 1, line 36 - line 64; figures 1,2	1,3-5, 7-9
A	EP 0 391 490 A (HITEC CO LTD) 10 October 1990 (1990-10-10) the whole document	10-21
A	US 3 672 001 A (GREIDER CHARLES AUSTIN) 27 June 1972 (1972-06-27) the whole document	10-16

# INTERNATIONAL SEARCH REPORT

information on patent family members

Inter. Patent Application No

PCT/US 00/02028

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5830050 A	03-11-1998	JP 8103206 A	23-04-1996
US 3952370 A	27-04-1976	NONE	
US 5087463 A	11-02-1992	NONE	
EP 0885565 A	23-12-1998	DE 19726238 C US 5947809 A	14-01-1999 07-09-1999
US 5813907 A	29-09-1998	NONE	
EP 0391490 A	10-10-1990	JP 2269618 A JP 2747514 B DE 69014955 D DE 69014955 T ES 2065467 T US 5092814 A	05-11-1990 06-05-1998 26-01-1995 22-06-1995 16-02-1995 03-03-1992
US 3672001 A	27-06-1972	NONE	



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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>7</sup> : A22C 11/02	A1	(11) International Publication Number: <b>WO 00/59310</b>
		(43) International Publication Date: 12 October 2000 (12.10.00)

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(30) Priority Data:  
60/127,770 5 April 1999 (05.04.99) US

(71) Applicant (for all designated States except US): TOWNSEND ENGINEERING COMPANY [US/US]; 2425 Hubbell Avenue, Des Moines, IA 50317 (US).

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Jay, D. [US/US]; 2425 Hubbell Avenue, Des Moines, IA 50317 (US).

(74) Agent: ZARLEY, Donald, H.; Zarley, McKee, Thomte, Voorhees & Sease, Suite 3200, 801 Grand Avenue, Des Moines, IA 50309-2721 (US).

(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

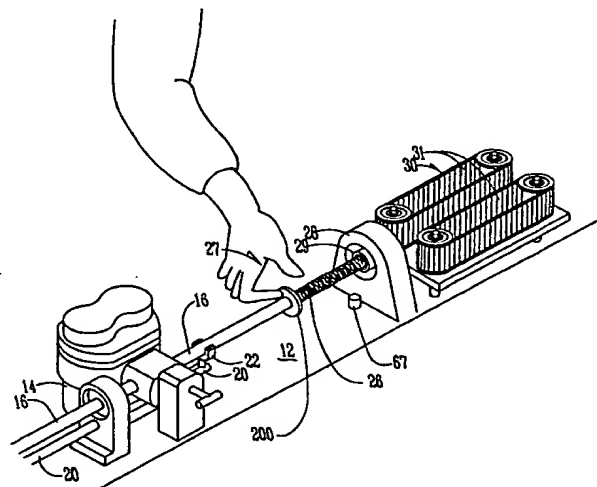
Published

With international search report.  
With amended claims.

(54) Title: METHOD AND MEANS FOR FILLING NATURAL CASING SAUSAGES

(57) Abstract

A method of filling a natural hollow elongated casing with meat emulsion involves placing a natural casing on an elongated meat emulsion stuffing tube having a meat emulsion discharge end, closing an extended end of the natural casing over the discharge end of the stuffing tube so that meat emulsion exiting the discharge end will push the natural casing longitudinally by pumping meat emulsion through the stuffing tube for expansive discharge into the natural casing at a sufficient volume and velocity to provide the primary energy within the natural casing to move the natural casing forwardly off of the discharge end of the stuffing tube. The casing is extended through a hollow chuck (100). A resilient brake element (160) in the chuck is extended around the casing to impede its longitudinal movement. A thrust collar (200) is slidably mounted on the stuffing tube and is intermittently manually pushed against the casing to limit the length thereof but is insufficient to create compression pressure thereon. An apparatus for filling a natural casing has a thrust horn (16) for pushing the natural casing longitudinally, and a casing hopper (46) that can be pivoted from a forward operating position to a rearward inoperative position.



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What is claimed:

1. A method for filling a natural hollow elongated casing with a meat emulsion, comprising, placing a natural casing on an elongated meat emulsion stuffing tube having a meat emulsion discharge end, closing an extended end of the natural casing over the discharge end of the stuffing tube so that meat emulsion exiting the discharge end will push the natural casing longitudinally by pumping meat emulsion through the stuffing tube for expansive discharge into the natural casing at a sufficient volume and velocity to provide the primary energy within the natural casing to move the natural casing forwardly off of the discharge end of the stuffing tube.
2. The method of claim 1 wherein water is applied to the natural casing before placing the casing on the stuffing tube to make the casing hydrated, soft, pliable and slippery to prevent adhesion of the casing to the stuffing tube.
3. The method of claim 1 wherein the forward end of the stuffing tube extends through a hollow chuck, placing a resilient brake element in the chuck around the stuffing tube to yieldingly engage the natural casing to impede the longitudinal movement of the natural casing on the stuffing tube.
4. The method of claim 1 wherein a rotatable linking assembly is located downstream of the discharge end of the stuffing tube to link the natural casing filled with the meat emulsion and to impede the longitudinal movement of natural casing from the stuffing tube.
5. The method of claim 1 wherein a meat pump is employed to pump meat emulsion through the stuffing tube, wherein the forward end of the stuffing tube extends through a hollow chuck, placing a resilient brake element in the chuck around the stuffing tube to yieldingly engage the natural casing to impede the longitudinal movement of the natural casing on the stuffing tube, wherein a rotatable linking assembly is located downstream of the discharge end of the stuffing tube to link the natural casing filled with the meat

*Replaced by Article 19*

emulsion and to impede the longitudinal movement of natural casing from the stuffing tube.

5 6. The method of claim 1 wherein a thrust collar is slidably mounted on the stuffing tube behind the natural casing, intermittently pushing the thrust collar against the casing insufficiently to create squeezing or compression pressure thereon but to facilitate the normal forward movement of the casing on the stuffing tube beyond the normal movement of the casing caused by the energy of the emulsion entering the casing.

10 7. A method for filling a natural hollow elongated casing with a meat emulsion, comprising, providing a casing filling station including a stuffing tube for supporting the casing to be filled with meat emulsion, providing a casing hopper adjacent the casing filling station to serve as a reservoir for a plurality of shirred artificial casings for delivery of shirred artificial casings for mounting on the stuffing tube, and moving the casing  
15 hopper away from its position adjacent the casing filling station when natural casings are placed on a stuffing tube in the casing filling station.

8. The method of claim 7 wherein a PLC is provided and senses when the casing hopper is in its position adjacent the casing filling station to thereupon control the  
20 longitudinal movement of the stuffing tube, to maintain the stuffing tube in a non-automatic extension mode, to hold a follower connected to the stuffing tube in a retracted position, and to maintain the casing hopper in its position adjacent the casing filling station.

25 9. The method of claim 7 wherein a natural casing is placed on the stuffing tube with the stuffing tube being in a partially retracted position to locate a discharge end of the stuffing tube upstream of the casing filling station; actuating the PLC to cause the stuffing tube to extend through a chuck, and to cause a meat pump to start pumping meat through the stuffing tube when the position of the stuffing tube through the chuck is sensed, and to  
30 start the rotation of the chuck and the stuffing tube, and to start the operation of linking chains and a conveyor located downstream from the casing filling station; manually

advancing the follower and sensing its arrival at a position adjacent a twister mechanism containing the chuck, and causing the PLC to stop the operation of the casing filling station.

5 10. A machine for filling meat emulsion into elongated natural or artificial casings, comprising, a casing filling station including a stuffing tube for supporting a casing to be filled with meat emulsion, a casing hopper to serve as a reservoir for a plurality of shirred artificial casings mounted on the machine adjacent the casing filling station for delivery of shirred artificial casings for mounting on the stuffing tube, and means on the machine for  
10 moving the casing hopper away from its position adjacent the casing filling station when natural casings are placed on a stuffing tube in the casing filling station.

11. The machine of claim 10 wherein the means for moving the casing hopper includes means for pivoting the casing hopper away from the casing filling station.

15 12. The machine of claim 10 wherein the means for moving the casing hopper includes means for raising the casing hopper, pivoting the casing hopper, and thence lowering the casing hopper for moving the casing hopper away from the casing filling station.

20 13. The machine of claim 10 wherein the stuffing tube is longitudinally movably mounted on the machine, and means is associated with the stuffing tube to permit adjustment of its longitudinal movement.

25 14. The machine of claim 10 wherein the adjustment of the longitudinal movement of the stuffing tube is comprised of a removable hard stop, or a sensor actuated pneumatic control means.

30 15. The machine of claim 10 wherein at least one sensor is located in the machine to detect when the casing hopper is in its position adjacent the casing filling station; the sensor being operatively connected to a PLC to control longitudinal movement of the stuffing tube and to maintain the stuffing tube in a non-automatic extension mode, to hold

a follower connected to the stuffing tube in a retracted position, and to maintain the casing hopper in its position adjacent the casing filling station.

16. The machine of claim 15 wherein a natural casing is placed on the stuffing tube with the stuffing tube in a partially retracted position and with a discharge end being upstream of the casing filling station; the PLC upon being actuated is adapted to cause the stuffing tube to extend through a chuck, and to cause a meat pump to start pumping meat through the stuffing tube when the position of the stuffing tube through the chuck is sensed, and to start the rotation of the chuck and the stuffing tube, and to start the operation of linking chains and a conveyor located downstream from the casing filling station; a sensor on the machine adjacent a twister mechanism containing the chuck to detect the manual advancement of the follower in the proximity of the sensor to send a signal to the PLC to stop the operation of the casing filling station.

17. A sausage machine for filling natural casings which has a meat stuffing horn for receiving a hollow natural casing with a thrust collar slidably mounted on the stuffing tube for pushing a natural casing longitudinally on the stuffing tube.

18. The method of claim 6 wherein the thrust collar is intermittently manually pushed against the casing.

19. The machine of claim 10 wherein the means for moving the casing hopper includes means for horizontally pivoting the casing hopper away from the casing filling station.

20. The machine of claim 10 wherein the means for moving the casing hopper includes means for slidably moving the casing hopper away from the casing filling station.

21. The machine of claim 10 wherein the means for moving the casing hopper includes means for pivoting the casing hopper 180° away from the casing filling station.